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Case Report

Laser-Assisted Removal of a Foreign Body Impacted in the Esophagus

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Background and Objective: **We reported the use of Holmium-YAG laser in the management of a foreign body impacted in the esophagus.**
Study Design/Patients and Methods: **Esophagoscopy was performed on a man with a denture impacted in the esophagus. The denture was disimpacted into the stomach and fractured with Holmium-YAG laser before removal.**
Results: **The denture was successfully removed in three pieces without complications.**
Conclusion: **Holmium-YAG laser can be used to fragment foreign bodies to aid in their removal. Lasers Surg. Med. 20:480–482, 1997.** **© 1997 Wiley-Liss, Inc.**

NTRODUCTION

A 35-year-old man accidentally swallowed his denture. He complained of retrosternal pain and spat out blood stained saliva. Chest X-ray revealed a piece of metal at the level of the third thoracic vertebra (Fig. 1). At endoscopy, a V-shape denture fragment was found (Fig. 2). The fragment was impacted in the esophageal wall by its metal spike, preventing any upward displacement. Repeated attempts to draw the denture into an overtube were unsuccessful. The fragment was pushed down into the stomach. Using a dual channel endoscope (Olympus 2T-200), the denture was grasped with forceps and fragmented into three pieces with Holmium-YAG laser. The fragments were pulled into an overtube and removed. The energy had set at 1.8 J/pulse at 15 pulses/second. The total energy required was 1.72KJ and the whole procedure took 45 minutes.

Oral diet was resumed on the day after the procedure, and the patient was discharged 2 days later.

DISCUSSION

Although 80–99% of ingested foreign objects will pass uneventfully through the gastrointestinal tract [1], impaction of the foreign body in the esophagus may lead to esophageal perforation and is an absolute indication for intervention. This may be done either by rigid esophagoscopy or flexible endoscopy. Rigid esophagoscopy requires general anaesthesia. With the appropriate equipment and accessories, a skilled endoscopist can remove most foreign bodies using flexible endoscopes.

In our patient, endoscopic removal was difficult because of the shape of the denture and the way in which it was impacted. Either limb of the denture was too large for an overtube (inner diameter 1.7 cm). Even though the metal-baring limb could be grasped firmly with crocodile forceps and partly admitted into an overtube, the other limb would re-impact and lacerate the cricopharyngeus on pulling up. Fortunately, the denture could be pushed into the stomach. Although the denture material (methyl methacrylate and stainless steel) is inert, we were reluctant to leave the denture in the stomach for fear of small bowel perforation because of its irregular shape. Using the Holmium-YAG laser, we fragmented the denture, which was then removed piecemeal.

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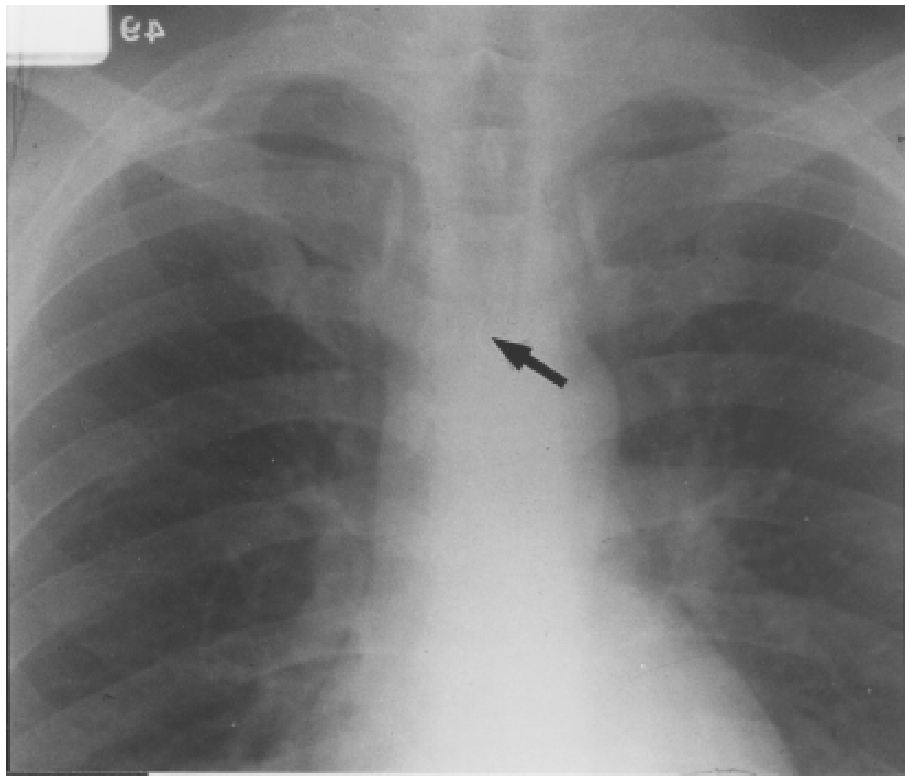

Fig. 1. Chest X-ray showing metal spike in the upper esophagus.

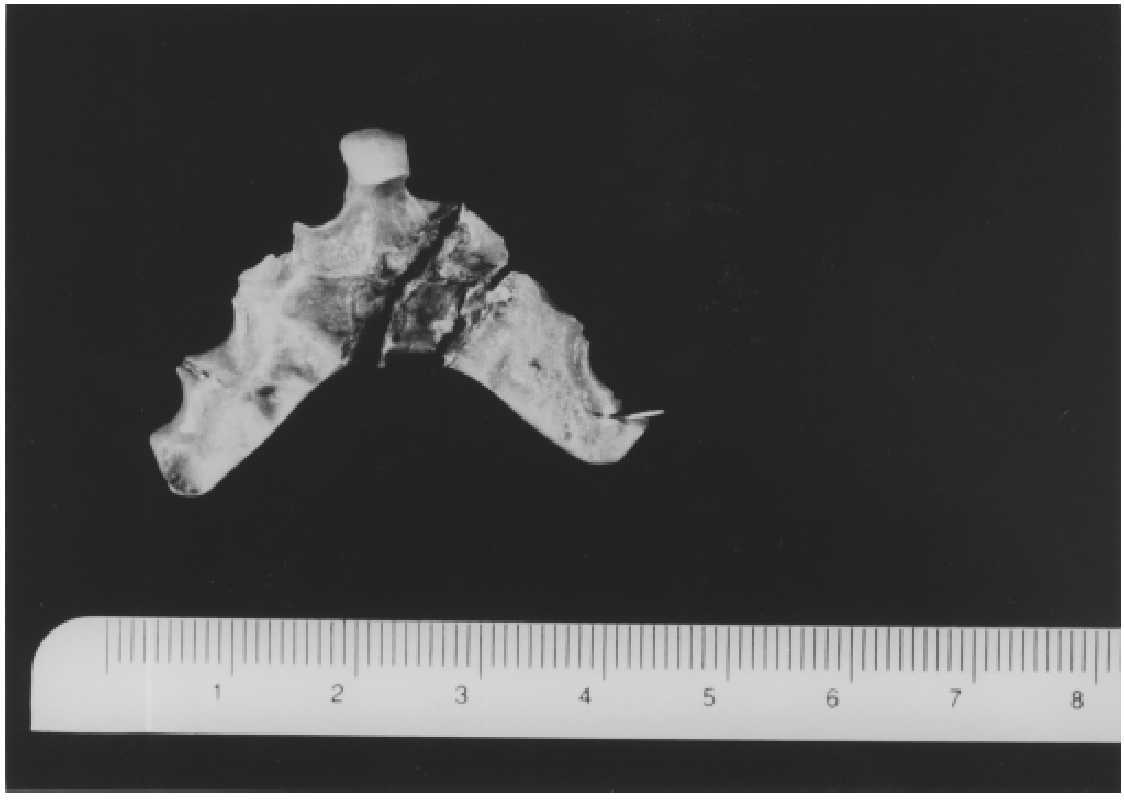

Fig. 1. Fragmented denture.

Laser has been used in the rectum and the bronchial tree to fragment foreign bodies [2,3]. It also has been used to fragment phytobezoars in the stomach [4]. We have found Holmium-YAG laser useful in our patient, and we believe that it may be the first report of the use of laser to fragment a denture in the stomach.

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